

GLY 3782 Geology Excursion/GLY5786 Advanced Field Excursion (3 credits) Spring 2018

Meeting Time Tuesday-Thursday 9:30-10:45AM
Room PC 311

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Teaching Assistant Kimberly Beck
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Course Texts

1. Sharp, R.P. and Glazner, A.F., 1997, *Geology Underfoot in Death Valley and Owens Valley*: Mountain Press Publishing Company, Missoula MT, 321 p. ISBN 0-87842-362-1
2. Miller, M.B. and Wright, L.A., 2015, *Geology of Death Valley National Park*, 3rd edition: Kendall/Hunt Publishing Company, Dubuque, Iowa, 124 p. ISBN 978-1-4562-4998-2.
3. various research articles to be announced

Course Content

This course is an introduction to the geology and geologic history of Death Valley National Park, California. The primary activity of the class will be a week-long, spring break field trip to Death Valley and the surrounding area. Several lectures on background material will be presented before the trip. Lecture topics will include, but are not limited to: geology and tectonics of the Basin and Range province, processes of extensional faulting, Cenozoic volcanism in the western U.S., Mesozoic and Cenozoic tectonic history of the western U.S., geomorphology, hydrogeology in arid climates, mining / economic geology in and around Death Valley, stratigraphy and sedimentology of Paleozoic and Cenozoic rocks in and around Death Valley, and paleontology and paleoenvironments of the Death Valley region.

Because the work required for the course is concentrated on the field trip, we will meet for lectures once every week, on Tuesday, before the trip. Meetings on Thursdays will be held mostly to address the logistical planning for the excursion, which is considerable and will require a lot of student input. Faculty or staff can require additional meetings on Thursdays that are not listed on the schedule if necessary. After the trip we will meet Tuesdays and Thursdays for the presentation of term papers.

The Field Trip

The highlight of the course is the 8-day field trip to Death Valley, California. We will leave on the Wednesday before Spring Break (March 7) and return the Thursday of Spring Break (March 15). If you choose to remain in Las Vegas and environs after the excursion ends on the evening of March 14, you may, but from that time forward you are on your own. Students will enjoy the spectacular views, wide variety of rock types and evidence for past and present tectonic activity and other geologic processes. The field trip will be a combination of “geo-tourism” and field exercises, where students will gain experience in map reading, using a geologic compass, measuring a stratigraphic section and interpreting structure. The department will cover some costs of the field trip, including vehicle rentals, campsite rentals, shipping of gear and park entrance fees. Students will be responsible for airfare (Miami – Las Vegas roundtrip), food, and lodging for the three nights spent in motels. It is critical that you arrive in Las Vegas and depart from Las Vegas at the right times—the appropriate flights will be discussed in class.



FIU students and faculty hiking through tilted Proterozoic sedimentary rocks in Mosaic Canyon.



FIU students and faculty investigating Tertiary volcanic rocks near Shoshone, California.

Preparation of the Term Paper

Because presentation of term papers will occupy most of the class time available after the field excursion, it is essential that you have your term paper completed **before** the excursion. Term papers will therefore be due in class on **March 6**. This means that you need to begin immediately to choose a term paper topic relevant to the structural geology, geomorphology, hydrology, environmental and/or climate history, tectonics, sedimentary history, paleontology, volcanic activity or some other topic germane to the geology of the Death Valley area, and commence research on it.

Learning Outcomes

Students will demonstrate a basic understanding of the geology of the Great Basin and Death Valley.

Students will learn to make field measurements and observations and relate them to the reading materials.

Students will learn to record field observations accurately and represent geological relationships and information in their field books.

Students will demonstrate the ability to research, write and present a scientific report.

Grading for GLY 3782

Course grades will be determined from student performance in the three areas described below.

Class and Field Trip Participation (30% of course grade): Students are expected to attend and actively participate in the course lectures. Students will be assessed on their involvement in group discussion and lecture, both in the classroom and on the trip, their contribution to the logistical arrangements prior to and during the field trip, and their participation in the term paper presentations at the end of the semester. Everyone is expected to attend every term paper presentation, and attendance will be recorded at each class meeting.

Field Notebook (40% of course grade): Each student will keep a field notebook during the trip. The notebook will be your record of observations and interpretations you make, as well as your place for taking notes on discussions that take place on the outcrop or in the car. I will collect the field notebook in Las Vegas on March 14 before we return to Miami.

Term Paper (20% of course grade): Students will research and write a technical paper that is no longer than 10 pages of double-spaced text, plus figures and references. The topic of the paper must be related to the region of Death Valley, or to geologic processes and features seen during the field trip. The paper should be a summary of published literature on the chosen topic and must include at least 6 references, none of which may be a web site. The term paper will be due the class before we leave for the field excursion, which is **March 6**.

Term Paper Presentation (10% of course grade): Each student will present his or her research paper to the class after the field excursion. Presentation will be strictly held 12-15 minutes in length plus 2-3 minutes for questions, and will be graded on clarity, organization and content.

GLY 5786 Grading

The components are the same as described above, except for their percentages:

Class and Field Trip Participation – 20%

Field Notebook – 30%

Term Paper – 30%

Presentation – 20%

Course Schedule

Day	Activity
Jan 9	Introductory class meeting
Jan 11	Introductory logistical meeting—forming the committees
Jan 16	The checklist, how to survive in the field
Jan 18	How to write a term paper

Jan 23	Geological history of the Death Valley region. Dr. Collins: Paleozoic-Mesozoic. Dr. Macfarlane: Cenozoic
Jan 25	
Jan 30	Paleontology: Aguerberry Pt., stromatolites, Snowball Earth, crossbeds and dunes, Ice age mammals. Collins
Feb 1	Logistics
Feb 6	Igneous features of Death Valley. Macfarlane
Feb 8	
Feb 13	Tectonics of the Death Valley region. Wdowski
Feb 15	Logistics
Feb 20	The Round Mountain gold mine. Macfarlane
Feb 22	
Feb 27	Keeping your field book
Mar 1	Equipment sign-out
Mar 6	How to give a talk. Last minute instructions. Term papers due.
Mar 7-14	Field Excursion!
Mar 20	Term paper presentations
Mar 22	
Mar 27	Term paper presentations
Mar 29	
Apr 3	Term paper presentations
Apr 5	
Apr 10	Term paper presentations
Apr 12	
Apr 17	Term paper presentations
Apr 19	
April 24	Term paper presentations